Space Weather Forecast

Issued on Sunday, 09 April 2023 at 12:19 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate flares (R1-R2 Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with a number of common class flares observed, mainly from the moderately sized sunspot region in the southeast. This region consists of a number of individually small and relatively ragged spots in, however recent growth appears to have stalled with a potential maturing of the region now occurring. There are two other unnumbered and new sunspot regions, in the northeast and southeast quadrants. These are currently small and relatively simple, however growth is being observed in the northernmost one. No Earth-directed CMEs were observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have eased to be at background levels, generally below 350 km/s. The total magnetic field strength has been weak throughout, with the north-south component oscillated weakly weakly. Geomagnetic activity has been Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary.

Solar Activity: Low to Moderate activity is expected, with an ongoing chance of Moderate flares (R1-R2 Radio blackouts) most likely from the sunspot region in the southwest disc.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. The CME observed on 07 Apr was assessed as missing, with only a very small chance of a weak glancing interaction. Current background slow-winds are expected to persist until later on day 2 or day 3 (10-11 April), when the arrival of faster solar winds from a coronal hole is possible. However, this is expected to bring only a relatively muted enhancement to conditions. Geomagnetic activity is expected to be mainly Quiet day 1 (9 Apr), with a chance of rising to Unsettled with Active periods later day 2 (10 Apr) but more likely on day 3 (11 Apr). Activity then easing day 4 (12 Apr).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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